



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
841 Chestnut Building  
Philadelphia, Pennsylvania 19107-4431

JUL 20 1994

Mr. Orlando Monaco  
Naval Facilities Engineering Command  
Code 0223  
10 Industrial Highway, Mailstop #82  
Lester, Pennsylvania 19113

Re: Naval Air Warfare Center (NAWC) - Warminster, PA

Dear Mr. Monaco:

Please find below EPA comments on a Draft Remedial Investigation Report for OU-3 submitted to EPA under letterhead dated June 20, 1994:

General

An executive summary should be included. Prior to including in the final report, please provide to EPA for review and comment.

1.0 Introduction

1.2 Overview of IRP Program at NAWC Warminster

Second and third sentence should read: "The areas of concern identified to date include eight waste disposal sites originally identified under the IRP program. These eight sites cover about seven acres on NAWC property and are as follows:"

Third paragraph, first sentence should read: "...within Area C, which has been defined to include IRP Sites 4 and 8 as well as immediately surrounding areas."

Fourth paragraph: When discussing previous RI work, reports summarizing the results of the previous RI work should be specifically referenced.

1.3.2 Facility History

Second paragraph: Fourth and fifth sentences should be replaced with the following - "On September 20, 1990, the Navy and EPA signed a Federal Facility Agreement outlining a process for conducting CERCLA activities at NAWC Warminster."

### 1.3.3 Environmental Investigations

Second paragraph, last sentence should read: "This was the first CERCLA remedial action selected ..."

### 1.4.2 Site 8 - Fire Training Area

Sixth sentence should read: "...and discharges this runoff to an unnamed tributary of Little Neshaminy Creek to the north." Last sentence in the first paragraph re: foot-bridge should be deleted.

Last paragraph: Area of water ponding should be indicated on a map, as well as the two different areas used for "burning".

Figure 1-2: HN-34F should read HN34-X.

### 1.5.1 Previous Investigations for Site 4

First sentence should read: "...during previous investigations (see Figure 2-1 for well locations and Table 2-1 in Section 2 for well construction summaries)". Note: Table 2-1 indicates 14 previously installed wells, not 10.

Again, previous RI report of concern should be referenced.

Fifth and sixth sentences should read: "In particular, 1,2,4-trichlorobenzene was detected at 2 ug/l and 1,2-dichlorobenzene was detected at 3 ug/l in one downgradient shallow bedrock well (DG-16). In addition, phthalates were detected in several wells at levels between \_\_\_\_ ug/l and \_\_\_\_ ug/l; their occurrence..." Delete last sentence in this paragraph re: PCE.

Second paragraph, last sentence should read: "...also contained low concentrations of PAHs, ranging from \_\_\_\_ ug/l to \_\_\_\_ ug/l."

### 1.5.2 Previous Investigations for Site 8

In summarizing previous RI work addressing groundwater at this site, delete the first paragraph and revise the second as needed to do the following:

- Identify all 4 wells previously installed, referring to Figure 2-2 and Table 2-1.
- Provide information which indicates which wells had been sampled and the type and range of concentrations detected.
- Reference the fact that DG-11 is obstructed and cannot be sampled any more if this is the case.
- When referencing qualified data, define the qualifier.

Last sentence should read: "Chlorinated solvent (1,4-dichlorobenzene) was detected in only one surface soil sample at a level of \_\_\_\_\_."

#### 1.5.3 Off-Base Groundwater Contamination

Second and third sentences should be consolidated to read: "The results of this sampling found six wells on Kirk Road (see Figure 2-1) contained PCE concentrations ranging from 5.3 to 31.4 ug/l."

Note whether any other contaminants were detected in the off-base wells.

### 2.0 Area C Remedial Investigation

#### 2.1.1 Previous Well Installation Information

First paragraph, last sentence: Delete.

Table 2-1: Insert space between "Well Construction Summary" and "Previously Installed Wells". Also, page 2-4, the well are "Focused RI Wells", not "Previously Installed Wells".

#### 2.2 OU-3 Monitoring Well Installation

Describe the criteria used to determine the "significant" water-bearing fractures upon which the monitoring well depths were based.

#### 2.3 Groundwater Sampling

First paragraph: Identify which wells were not sampled and why.

Fourth paragraph: Define "CLP".

Specify how long it took for wells with yields of less than 1 gpm to recover prior to sampling each of the wells.

It was reported in Section 2.2 that turbidity, temperature, pH and conductivity were monitored during development. Was turbidity included in the field measurements collected during sampling? Tables reporting all of these parameters for both development and sampling should be included in the report.

### 3.0 Physical Characteristics of Study Area

This section should include a discussion of the results of the wetlands delineation for the area receiving surface water runoff from Area C and/or areas otherwise potentially affected by the

potential pumping of groundwater within, or in the vicinity of, Area C. In addition, a map indicating the surface drainage area immediately north of NAWC property should be included and referred to as needed describing the results of the wetlands delineation and in addressing the comments below, e.g. locating the unnamed tributary(ies) of Little Neshaminy Creek, etc.

#### 3.2.1 Hydrology at Site 4

First two sentences should read: "An unnamed tributary of Little Neshaminy Creek is located north of site 4, in Munro Park. This stream originates at the base of a storm sewer drain east of Site 4 and runs east to west through Munro Park immediately north of residences along Kirk Road."

#### 3.2.2 Hydrology at Site 8

Second sentence should read: "...unnamed tributary of Little Neshaminy Creek..."

#### 3.7.4 Geologic/Hydrogeologic Controls...

Clarify and/or provide more detail to support the suggestion that the stream "may act as a buffer between Area C groundwater and the municipal well".

### 4.0 Nature and Extent of Contamination

First paragraph, first sentence should read: "... sampling described in Section 3.0."

Second paragraph, first sentence should read: "...Area C includes two previously identified areas..."

Second paragraph, add last sentence which reads: "In addition, a maintenance area and firing range (see Figure 1-2) have also been identified as additional potential groundwater contaminant sources within Area C."

#### 4.1 Soils

First paragraph: Delete second sentence.

Second and third paragraphs: Rather than say concentrations are "low" or positive, actual concentrations, concentration ranges and frequencies should be identified, including specific TICs.

#### 4.2 Groundwater

Add an additional paragraph that reads: "The results of all monitoring well sampling conducted during the Focused RI are presented in Table 4-1."

Prior to the second paragraph on page 4-3, include the heading "Site 8".

First two paragraphs under Site 8 should read:

"Four functional monitoring wells of varying depths (MW01, DG-14, HN-34S and BG-05) are located in the immediate vicinity of Site 8.

Organic contaminants were detected only in wells HN-34S and MW01. In particular, tetrachloroethene (PCE) was detected at levels of 9 ug/l and 1 ug/l respectively in these wells. In addition, di-n-butylphthalate was detected at 1 ug/l in HN-34S."

If significant TICs were detected in any of the wells referenced above, or otherwise detected in any other case during the Focused RI, this information should be identified and discussed. For example, were any petroleum hydrocarbons which may appear as a TIC detected around Site 8?

Fourth paragraph: The concentrations of acetone and di-n-butylphthalate detected in the wells should be identified and a statement made regarding the "quality" of this data if relevant, e.g. state the data is "qualified" if applicable.

Include a discussion regarding the detection of inorganics in the wells discussed above. As discussed above, reference actual concentrations where applicable rather than say levels are "low". Where appropriate, compare to background concentrations, compare filtered and unfiltered results, and discuss the significance of each.

Prior to the last paragraph on this page, include the heading "Site 4

Figure 4-1: As currently produced, this figure is illegible. Reproduce as needed.

Page 4-5, first full paragraph, first sentence should read: "Monitoring wells HN-28S and HN-28I, located about 600 feet west of Site 4 and 1000 feet west of Site 8 contained several organic compounds at low concentrations."

Page 4-5, second full paragraph: The discussion regarding the inorganic sampling results for Site 8 should be moved under "Site 8" discussion in this section.

Page 4-5, second full paragraph: Generally, the unfiltered and filtered inorganic analytical data presented in Table 4-1 suggest that EPA Region III's Field Filtration Policy for Monitoring Well Groundwater Samples Requiring Metals Analysis (EPA Region III QA

Directive dated April 23, 1990 (see Enclosure 1)) may not have been fully followed during the Focused RI. For example, the detection of antimony, cadmium and lead in filtered samples and not in associated unfiltered samples suggests that the samples may have been filtered after preservation. As a result, the subject data may not provide a basis to determine whether there are elevated levels of metals attributable to Area C in groundwater or whether the subject levels present a threat to human health and/or the environment. As recommended on page 6-27, another round of sampling should be conducted, and the subject guidance followed. It is recommended that an appropriate sampling device be used to prevent stress on the formation. Regarding the text in this report, the inorganic data should be reevaluated in light of the inherent limitations of the data. IN addition, comments addressing Risk Assessment below should be considered in the reevaluation of the data.

Similarly, the data for Site 4 should also be reevaluated in light of these limitations discussed under the heading "Site 4".

#### 4.3 Off-Base Residential Wells

Revise first two sentences to read: "A number of offbase wells in the vicinity of Area C have been sampled by the Navy since the Spring of 1993. These wells include all homes located on Kirk Road as well as a well serving Werner Park (see Figure X)." A figure should be include to indicate the locations of these wells. The test should be revised to reflect the recent detection of PCE in the Werner Park well. In addition, the following statement should be inserted: "The affected locations have subsequently been provided water treatment systems by the Navy and/or are being connected to a public water supply."

Table 4-1: Definitions of data qualifiers should be included. The identity of the numbers in parentheses should be identified. The identity of the data in the two different columns under each well should be identified. A better copy of this table should be provided (many numbers are illegible).

#### 6.0 Risk Assessment

Generally, per comments on Sec. 4.2, the utility of Focused RI sampling data in conducting a risk assessment for inorganic substances is questionable. Should the Navy choose to attempt an final assessment of risk for inorganics using the subject data and/or attempt to draw conclusions regarding attribution to NAWC, EPA requests the opportunity to review the applicable portions of the report prior to inclusion in a final report. Upon review of these revised sections, EPA will comment regarding their potential inclusion in the final report. Please advise us of how you plan to proceed in this regard.

In any case, please note the preliminary comments below regarding the Risk Assessment as currently written:

- 1) Use of maximum concentrations for risk assessment, regardless of the frequency of detection, is questionable, e.g. thallium and Endosulfan II were each detected in only one out of 34 samples.
- 2) Many chemicals/substances found to be of "no concern" in Table 6-1 underwent an exposure assessment (e.g. see Table 6-3). Why? (Note: Lead is missing from Table 6-1.)
- 3) Why are Hazard Indices and Carcinogenic Risks not presented in the body of the report for each "chemical of concern" as they were in the OU-1? Without this information, the basis for risk conclusions in Table 6-6 and this section is not evident.
- 4) The text says "significant nonvolatile chemical contamination was not detected" and that there is "minimal release of metallic contamination associated with Area C", but calculated hazard indices for metals exceed acceptable levels. Which is true?
- 5) A discussion of "background" concentrations should be included, especially with respect to arsenic, e.g. what is the significance of 5 ug/l in HN-25I? Reference to USGS data or historical groundwater sampling at NAWC may be appropriate.
- 6) A discussion of the significance of "filtered" versus "unfiltered" sample results from a risk assessment perspective should be included (see Enclosure 1).
- 7) A risk contribution by vanadium is mentioned for the first time in the summary. Is it really significant?
- 8) The conclusion recommends the removal of only part of the group of contaminants previously mentioned to pose unacceptable risks. Why? In any case, recommendations regarding remedial action should not be included in this report.
- 9) As currently presented, the Risk Assessment and the balance of the RI report present conflicting conclusions regarding risks associated with metals in groundwater attributable to Area C.
- 10) Under Sec. 6.4.1, there are no "currently exposed off-site residents".
- 11) Table 6-7 is deceptive. For example, the frequency for exceedance of thallium in unfiltered samples should be "1 out of 34", not "1 out of 1". In addition, the "groundwater standard" of concern should be defined in the table.

- 12) In the Summary (6.4.3), there should be no statement regarding the need for remedial action.

As noted above, these do not necessarily constitute all EPA comments on the Risk Assessment. Additional comments may be forwarded. Please contact EPA regarding the timing of these comments if necessary. In addition, as noted above, EPA requests the opportunity to review the revised Risk Assessment and/or interpretation of inorganic data (Sec.4.2) prior to inclusion in a Final RI report.

Appendix A and Appendix B

The boring log for HN-24S indicates the hole was drilled to 125 feet, while the well construction detail shows HN-24S to be 202 feet deep. Resolve this discrepancy.

Should you have any questions or comments regarding the above, please give me a call at 215-597-0549.

Sincerely,



Darius Ostrauskas  
Remedial Project Manager

Enclosure (1)

cc: Tom Ames, NAWC  
Kathy Davies  
Nancy Rios  
Ben Mykijewycz  
David Kennedy, PADER